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ABSTRACT

The potential for on-line corpus in language teaching and learning has been the focus of attention on the part of teachers and researchers for some time now. The purpose of this study is to report on an Internet-based concordance approach to language learning and to investigate both qualitatively and quantitatively Taiwanese English-as-a-Foreign-Language (EFL) students' attitudes toward this learning tool. A 3-week, on-line corpus lesson was designed and implemented with a sample of 37 college students at a Taiwanese university. A questionnaire survey was then administered to investigate student's feedback on the Web-based concordance. The results of the study indicate that students in the study tended to have positive attitudes toward the use of the Internet in education. The challenges and possibilities for integrating Web-based material into the EFL classroom are also discussed. Images of the Web-based material are captured in images of a computer screen running the Chinese version of Microsoft Explorer with EFL material on display. Several tables display quantitative, statistical data. It is concluded that the Internet simply offers too much potentially useful and authentic spoken English for any EFL teacher to ignore. (Author/KFT)

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ABSTRACT

The potential for on-line corpus in language teaching and learning has been the focus of attention on the part of teachers and researchers for some time now. The purpose of the current study aimed to report on a web-based concordance approach to language learning and to investigate both quantitatively and qualitatively Taiwanese EFL students' attitude toward such a learning tool. A three-week on-line corpus lesson was designed and implemented to a sample of 37 college students at the Department of Applied Foreign Languages in an academic setting in Taiwan. Questionnaire survey was then administered to investigate students' feedback on the web-based concordance. The results of the study indicate that EFL college students in the study tend to have positive attitude toward the use of web-based concordancing as a learning tool. Challenges and possibilities of integrating web-based concordancing into EFL classroom are addressed.

INTRODUCATION

Web-based concordancing programs are now becoming widely available for use on personal computers by CD-ROM and Internet. A concordance is a type of index arrangement. It searches for occurrences of a given word, part of a word, combination of words, a punctuation mark, affix, phrase, or structure within a given text corpus, showing its immediate context (Granger, 1998; Biber, Conrad, & Reppen, 1998). The search word is sometimes also referred to as key word (Kettemann, 1995). One of the most commonly used concordance is Key Word in Context (KWIC) concordance. It is defined by Kennedy (1998) as follows.

> *"In a typical KWIC concordance, the format has the keyword in the center of the line as illustrated, but with more context each side of the keyword. In order to get a picture of the environments in which a keyword occurs in a corpus, the concordance can be sorted in such a way that all the same word sequences to the left or right of the keyword are displayed together."*

Figure 1 and Figure 2 show an example of concordance output sorted to the right and left of the keyword respectively.

Figure 1 Part of a Concordance for "WELL" (sorted to the right)

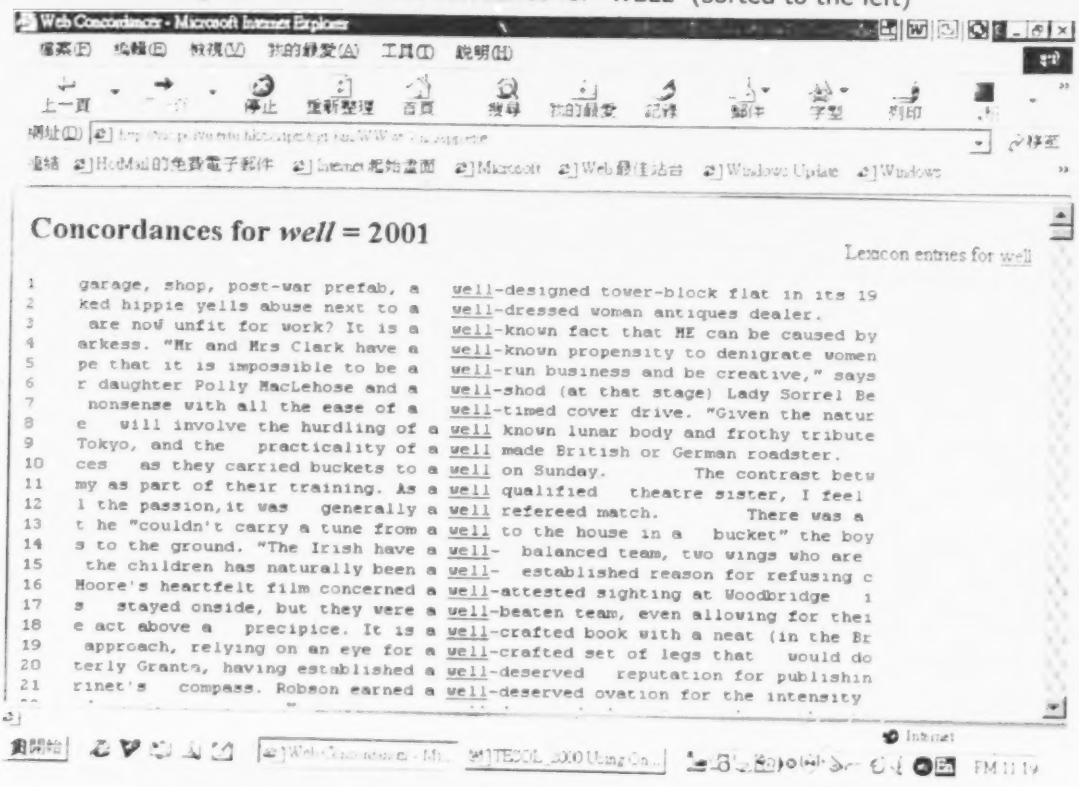
Web Concordancer - Microsoft Internet Explorer

Concordances for *well* = 2001

Lexicon entries for well

1	and Pollock to himself. Just as	well	. A ferocious early pace might have
2	stance winner, looks to sure to go	well	. A good third over an inadequate
3	l. And all of them Forrest saved	well	. A Jones hat-trick, and the work fr
4	er outing, and he comes up with,	well	, a music video: visual pyrotechnics
5	electrical retailer, holding up	well	. A negative trading statemen
6	dren and especially horses.	Well	, a new squint on history stretches
7	the top horse and I hope all goes	well	." A sparkling piece of work on We
8	ave been some man-made passages as	well	. "A warrener would have look
9	a nice horse in a year's time'.	Well	, a year is a long while and at leas
10	tches. Now Norwich, who are	well	able to sit back on a lead, defende
11	el, he has already said so much,so	well	, about love and the inhibitions t
12	at done, they must do those things	well	. Above all that, ministers m
13	are highly rated on a p/e of 24.5,	well	above the market average, but the
14	side of the Land Cruiser washed	well	above the door sills. The vehicle b
15	e late 1980s, had fixed pay scales	well	above the going market rate. Some
16	should bring growth and profits	well	above the industry's average.
17	n past years, seen rises in fees	well	above the inflation rate. Fi
18	The attendance of 8,700 was	well	above the recent average, and three
19	P.Boulez served the musical public	well	? "Absolutely. If there is a lack of
20	stration deliberately circumvented	well	-accepted restraints on executive
21	which a spokesman said is "selling	well	". According to Stena Sealink

Figure 2 Part of a Concordance for "WELL" (sorted to the left)



Web Concordancer - Microsoft Internet Explorer

Concordances for *well* = 2001

Lexicon entries for well

1	garage, shop, post-war prefab, a	well	-designed tower-block flat in its 19
2	ked hippie yells abuse next to a	well	-dressed woman antiques dealer.
3	are now unfit for work? It is a	well	-known fact that ME can be caused by
4	arkess. "Mr and Mrs Clark have a	well	-known propensity to denigrate women
5	pe that it is impossible to be a	well	-run business and be creative," says
6	r daughter Polly MacLehose and a	well	-shod (at that stage) Lady Sorrel Be
7	nonsense with all the ease of a	well	-timed cover drive. "Given the natur
8	e will involve the hurdling of a	well	known lunar body and frothy tribute
9	Tokyo, and the practicality of a	well	made British or German roadster.
10	ces as they carried buckets to a	well	on Sunday. The contrast betw
11	my as part of their training. As a	well	qualified theatre sister, I feel
12	l the passion,it was generally a	well	refereed match. There was a
13	t he "couldn't carry a tune from a	well	to the house in a bucket" the boy
14	s to the ground. "The Irish have a	well	- balanced team, two wings who are
15	the children has naturally been a	well	- established reason for refusing c
16	Moore's heartfelt film concerned a	well	-attested sighting at Woodbridge i
17	s stayed onside, but they were a	well	-beaten team, even allowing for thei
18	e act above a precipice. It is a	well	-crafted book with a neat (in the Br
19	approach, relying on an eye for a	well	-crafted set of legs that would do
20	terly Granta, having established a	well	-deserved reputation for publishin
21	rinet's compass. Robson earned a	well	-deserved ovation for the intensity

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A concordance provides the possibility to access the original text from any point in the concordance to check the wider context of a concordance line and to move around in the text without memory limitations. Thus, it allows students to read from a search word but in no way limited to it (Kettemann, 1995).

Advantages of Using Concordancing to Assist Language Learning

The use of concordancing as a tool to assist language learning is a much more recent phenomenon which is energized by the advent and popularity of computational power and development of computer concordancer program that make concordancing resources accessible to a wider population of language teachers (Stevens, 1995). With the recent widespread use of the World Wide Web, it seems to provide another new and promising way for language teaching, especially, for English as a foreign language (EFL) setting because students can get exposure to authentic and sorted language output through web-based concordancing. For this purpose, an overview of the benefits of concordancing in language learning will be reviewed first. Following this, a three-week lesson plan on web-based concordancing will be presented and a study on student's attitude toward the web-base concordancing will be discussed. Finally, the results of the study will be presented along with its implications for classroom teaching.

There are several advantages of using data-driven concordance as a learning tool. First, concordances give students easy and immediate access to authentic language production with many different styles and genres (Kettemann, 1995). It can build learners' competence by giving them access to the facts of linguistic performance and, thus, create an enhanced awareness of the meaning potential of English as well as bringing about an improved performance in writing tasks (Stevens, 1995).

Second, a concordance is an extremely powerful hypothesis testing device on vast amounts of data. It allows controlled speculation, makes hidden patterns of language use readily apparent, thus, enhances at the same time imagination and fosters inductive thinking and exploratory learning (Kettemann, 1995). In concordancing learning, the students' learning process becomes more exploratory and thus motivating and highly experiential. As students are supplied with plenty of relevant positive evidence regarding the syntactic-semantic forms of endless series of examples, they look at examples, inductively come up with the rules and then confirm or reject hypotheses about specific points in the language. Through using the concordancer on a regular basis, learners begin to develop strategies for dealing with a wide variety of texts. As a result of this kind of text analysis, learners are able to use concordance as a way of increasing their knowledge of English. (Kettemann, 1995)

Third, concordance output can also be used in the preparation of vocabulary or grammar materials and source book. As concordance is simple to use, requiring no

authoring, and having an exceptionally wide range of applications, it can help create vocabulary or grammar exercises for classroom use.

Finally, a concordance favors learning by discovery. It foster allow students to interact with text actively and analytically and allow students to question, explore the word forms, word usage, vocabulary, grammatical features, syntax, agreement, stylistics, collocation, and punctuation. Learners will come to understand the language use in textbook. Learners assume control of the process. Concordance also encourages learner's engagement with text of their choice, thus, empower the learner, and injects authenticity in the language learning process (Stevens, 1993). Learning shifts from being an inviolable authority to something which students can question, explore, and hopefully come to understand. It provides a window of access to text structure, allowing students to interact with text actively and analytically (Stevens, 1995).

With all the benefits that concordance can bring to language learners, it is of interest of learn what EFL students' attitude toward the DDL and what difficulties they encounter in the learning process. For the purpose, the primary objective of the present study aimed to integrate web-based concordance in the EFL classroom to enhance student's language learning and also to investigate student's feedback on the use of web-based concordance as a learning tool. In particular, the study was undertaken to explore the following three questions.

1. What are EFL students' attitudes toward the effectiveness of web-based concordance on their language learning?
2. What are the difficulties that the EFL students encounter in the web-based concordance learning process?
3. What recommendations in terms of concordancer design the students have in the study?

As web-based concordance-assisted language learning is still in its primitive stage, the results of this study can shed light on the ways of integrating this new feature into EFL classrooms and in hope that it can provide a new possibility for language learning.

METHOD

Subjects

The class chosen for the project consisted of a group of third year college students from the Department of Applied Foreign Languages at an academic setting in Taiwan. Discounting students who were absent in the class or the survey was incomplete, a total of 37 complete sets of data were obtained from the students.

Instrument

In order to identify students' feedback on the concordance learning, a survey was derived to assess students' attitude toward the use of the online concordancing. The survey consisted of both quantitative and qualitative questions. For quantitative

questions, 22 five-point Likert scale items were derived to measure students' perception of the effectiveness of online concordance learning on their various language skills and the difficulties that students encounter in the process. For qualitative survey, two open-ended questions were addressed to identify students' attitude toward the design of the online concordancing feature and what makes them most frustrated in the learning process. The instrument was administered at the end of the semester after students have gained enough experience in using online concordance. Data obtained from the survey was analyzed both quantitatively and qualitatively.

Course Design

The on-line resources used for the class is the VLC Web Concordancer at http://vlc.polyu.edu.hk/scripts/concordance/WWWConcapp.htm. Its features include that it permits left and right search of the keyword, loading and query can be interrupted at any point, and keyword selection allows spaces, and searching strings comprise more than one word. The objective of the course design is to introduce the web-based concordancing to EFL students and investigate students' feedback on this tool.

A three-week data-driven concordance lesson was designed and implemented. The main class activities introduced during the semester were as follows.

First, an overview of the concordance in terms of its history, definition of terminology, functions, and some frequently asked questions were presented to the class. Then, the teacher demonstrates how online concordance feature can be used by demonstrating the operation of web-based VLC concordancer, then, use concordancer to identify instances of a given word or phrase and discover the meaning listed on the concordance output. After demonstrate the process of discovering the collocations of two frequently confused verbs, the students were asked to practice using online concordance to search a word and phrases of their interest. Until students gain adequate familiarity of the concordance feature, a test item containing 20 troublesome questions on grammar or vocabulary was presented to the students. Students are required to check out the correct answer by using online concordance to get support for their answer. As a final exercise, assignment requesting students to work in group and to search and analyze selected two pairs of troublesome or "seemingly" synonymous words and phrases of their choice (such as 'think of' vs. 'think about') and use web-based concordancer to report proportional differentiation of the collocations. The students are required to report on the various meanings associated with the selected words by looking at their occurrences in natural contexts, provide examples from the concordance output, identify the collocation of the selected words and their frequency of occurrence, report words commonly co-occur with a particular word, and bring out

their new findings of word meaning and usage after the data-driven concordance learning experience.

RESULTS

Descriptive analysis

The results of the study show that, overall, students in the current study report to have positive attitude toward the on-line data-driven concordance learning, with mean score of 3.39 on a five-point Likert scale and standard deviation of .52. Among those various linguistics skills, the following skills are considered to be most helpful by using online concordance: the usage of vocabulary (Mean=3.68), the usage of phrases (Mean=3.62), and reading comprehension (Mean=3.49). The least effectiveness of web-based concordance in helping students in language learning was reported to be writing proficiency (Mean=3.16), grammar (Mean=3.24), and meaning of vocabulary (Mean=3.24). Table 1 shows the mean, standard deviation, and rank of students' perception of effectiveness of data-driven concordance on various language skills.

TABLE 1

Mean, Standard Deviation, and Rank of Effectiveness of Web-based Concordancing Approach

Linguistic Skills	Mean	S.D.	Rank
Vocabulary usage	3.68	.85	1
Phrases Usage	3.62	.89	2
Reading Comprehension	3.49	1.02	3
Phrase meaning	3.46	.87	4
Vocabulary meaning	3.24	.98	5
Grammar	3.24	.95	6
Writing	3.19	.91	7

With regard to the weaknesses of the web-based concordance appraoch, the results of the study show that the speed of Internet access proved to be the most troublesome factor for learning through on-line concordance, with mean score of 4.0 on a five-point Likert scale. Follows the speed of the Internet access is the time and efforts spent on analyzing the concordance output (Mean=3.92), unstability of Internet access (Mean=3.70), and frustration in analyzing the data (Mean=3.59). Reading concordance output (Mean=2.59), familiarity of online concordance features (Mean=3.03), and computer/Internet access (Mean=3.08) do not present to be a major problem in students' learning through online concordance.

TABLE 2

Mean, Standard Deviation, and Rank of Weaknesses of Web-based Concordancing Approach

Weakness in web-based concordance approach	Mean	S.D.	Rank
Speed of Internet connection	4.00	1.03	1
Time consuming on data analysis	3.92	1.01	2
Lack of stability on Internet connection	3.70	1.13	3
Data analysis	3.59	.93	4
Word choice	3.36	.75	5
Unfamiliar vocabulary on concordance output	3.14	.92	6
Limited access to computer and Internet	3.08	1.23	7
Operation of web-based concordance features	3.03	.90	8
Grammar on concordance output	2.89	.81	9

Table 3 shows the descriptive statistics of different level of reading skills on students' perception of effectiveness of web-based concordancing. The results of the mean score indicate that students with higher level of reading proficiency tend to consider the web-based concordancing more useful than their counterpart. Since the sample size of the current study is limited (N=37), the analysis of variance of these two variables does not yield significant differences. Therefore, ffurther investigation with bigger sample size is highly recommended.

TABLE 3

Reading Proficiency and Effectiveness of Web-based Concordance

Reading Proficiency	Mean	Std. Deviation	N
Low	3.31	.69	20
High	3.46	.69	17
Total	3.39	.69	37

Over 70% of students in the study report that they would set the agenda for using the web-based concordance in their future learning. Table 4 shows students' different levels of reported difficulty in using the concordance, degree of reported effectiveness in language learning, and frequency of using the web-based concordance on the mean scores of students' plan of future use of web-based concordance on a five-point Likert scale. The results of the mean scores show that students who consider web-based concordancing easy to use tend to have higher mean scores on their future plan of using it. Also, students who reported to have more positive attitude toward the effectiveness of using web-based concordance or have higher frequency of using web-based concordancing tend to have higher mean score on their future use variable.

TABLE 4

Degree of Difficulty, Effectiveness, and Frequency Use on Future Use of Web-based Concordance

Variable	Level	Mean	Std. Deviation	N
Level of Difficult	Low	3.75	.93	16
	High	3.10	1.14	21
Level of Effectiveness	Low	3.19	1.12	21
	High	3.62	1.02	16
Frequency of Use	Low	3.17	1.11	23
	High	3.71	.99	14

Qualitative study

Qualitative data were also collected through open-ended questionnaire items in the study. The results of the analysis of students' feedback were twofold, namely cognition-related factor and computer-related factor.

Cognition-related Learning Difficulties

Qualitative data obtained from the survey showed that significant percentage of subjects considered the concordance output too large to be manageable. Their brain were overloaded by the information. It makes the data analysis process to be very frustrating even though most of them recognize the value of obtaining authentic material of native speakers' language use. A good number of students also compare online concordance with print dictionary and grammar book. They favor print reference because they are more user-friendly and easy to use due to its straightforward presentation of information and reliable data retrieval.

Data analysis of concordance output is another major concern for subjects in the study. Several subjects find data-driven learning model to be difficult and feel uncomfortable about it. In addition, some students reported word choice for online concordance search to be tough for them. Some students in the study seem most comfortable with traditional role of learning, being in a deductive learning mode.

Computer-related Learning Difficulty

As reported in the quantitative analysis of students' perception of difficulty in learning through online concordance, the speed and stability of Internet connection still prove to be the major problem that makes online concordance learning to be difficult and hinder the effectiveness of learning even though computer access is not a major problem for students in the current study. Other concerns include the display method of the concordance output. Several students consider the layout of the screen not very user-friendly. Small font size and tight sentence display make reading online rather

difficult. Furthermore, limited corpus bank make some search unfruitful. Some students also mentioned that limited length of sentence display also causes incomplete display of sentences.

To summarize, the subjects in the current study find web-based concordance to be a fresh and interesting way of learning English through authentic language production. The majority of subjects plan to integrate web-based concordance to their future language learning plan (Mean=3.38). The results of the study not only confirm students' positive attitude toward the use of web-based concordance in language learning but also indicate why concordancing is not more widely used by language learners and their teachers.

CONCLUSION

This paper reports on an attempt to build and implement a web-based concordancing course. It describes the design of the lesson, how it was implemented, and students' reactions to the effectiveness of concordance assisted language learning. Several aspects of the experiences of this study are particularly encouraging. Most of the students in the study were positive about the exposure to examples of "real" English as opposed to the English in textbooks through web-based concordance and intend to use the new tool in their future language learning. In addition, they also found working with real English was more motivating. Other aspects of these students' experiences were more ominous. First, a concordance intended for use with students should be fast and responsive. It must load quickly, so as to not waste time simply accessing its database. Therefore, improving the bandwidth of Internet connection should be a major factor for the success of implementing web-based concordance in language learning. Second, Boolean operators can be integrated into the concordancer design (such as search 'could' or 'would' but not 'mould') to facilitate further investigation of language use. Third, more user-friendly screen design can definitely facilitate web-based concordance search and make the learning more enjoyable. Finally, the large concordance output of unedited authentic corpus text can present significant methodological problems for less experienced or unskilled learners and the risk of drowning in data is high. Therefore, corpus for specific learner groups, such as beginners or EFL students, is highly in demand.

Recommendations for Future Research

Although there is a growing interest in incorporating concordance into language learning (Sylviane Granger & Chris Tribble), its theoretical value of CALL for foreign language learning is still by no means clear. Further research is needed to ascertain whether the web-based concordance produces beneficial effects, and if so, why and for what aspects of language learning they do so.

Further studies with bigger sample size on the effectiveness of web-based concordance on various language skills are also important to shed light on use of this modern tool. In addition, since web-based concordance is speculated to be more beneficial for advanced understanding, further research in this regard is also worth of investigation.

Since the sample size in the current study is limited and the experimental study was not conducted under comparative conditions between a control group and an experimental group, the conclusion drawn from the study is still tentative. In order to validate the specific effects of web-based concordance on the language learning, further experimental investigations are necessary.

Pedagogical Implications

With the advent of technology, foreign language learners are exposed to more and more authentic language output. However, language pedagogy has paid little attention to the development of discovery and analysis of forms and patterns of language. It is, therefore, important to include web-based concordance into the language classroom and help teachers to start using the vast range of language data which now exists on the Internet. EFL teachers can gather material for creating exercises, teaching materials based on real examples exerted from the concordance. Concordancing can provide teachers with the possibility to look at authentic usage and offers a wide range of potential applications in the learning of grammar, vocabulary and literature in the classroom" (Kettemann, 1995)

To summarize, as Higgins (1991b:5) mentioned that "What is slowly becoming clear is that the most valuable contribution a computer can make to language learning is in supplying, on demand and in an organized fashion, masses and masses of authentic language." The most powerful of these tools is a concordancer. Web-based concordance environment enabled the instructor and students of the class to get exposure to endless authentic target language output which are not easy to realize in the traditional classroom environment. Language learners can benefit from teaching materials promoting inductivity, authenticity, and learner responsibility for learning and these ideas underpin current language methodologies that foster student-centered, authenticity, and learner responsibility (Stevens, 1995). As stated by Hadley (1998), web-based concordancing suggests a move-away from unnatural "simplified" textbook English and allow for a greater use of authentic materials. We must rethink the way grammar, vocabulary, reading, and writing skills are traditionally taught in many language classes and open the possibilities for better use of the new learning tool.

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